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Dr. Gustafson

MATH 360

HW 9.1

9.1) #1

$\vec{P}(1,1,0)$ $\vec{Q}(6,2,0)$

a.) $\vec{PQ} = [5,1,0]$

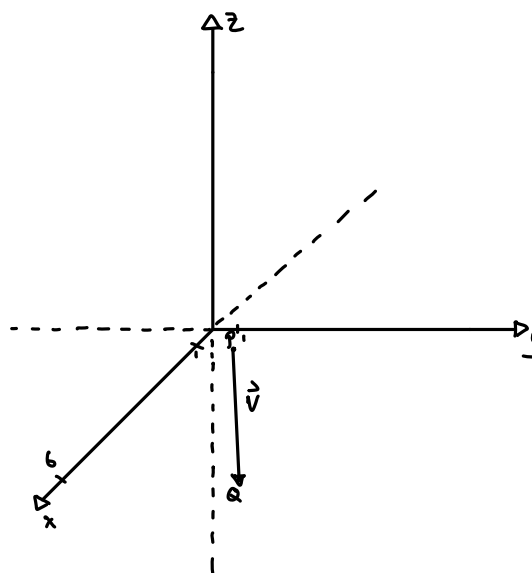b.) $|PQ| = \sqrt{5^2 + 1^2 + 0^2}$

   $= \sqrt{26}$

c.) $\vec{u} = \frac{1}{\sqrt{26}}[5,1,0]$

$\boxed{\begin{array}{l} \vec{PQ} = [5,1,0] \\ |PQ| = \sqrt{26} \\ \vec{u} = \dfrac{5}{\sqrt{26}}\hat{i} + \dfrac{1}{\sqrt{26}}\hat{j} + 0\hat{k} \end{array}}$

9.1) #14a $\vec{c} = [5,-1,8]$ $\vec{d} = [6,0,4]$

   $3\vec{c} - 6\vec{d}$

   $3[5,-1,8] - 6[0,0,4]$

   $[15,-3,24] + [0,0,-24]$

   $[15,-3,0]$

$\boxed{\begin{array}{l} 3\vec{c} - 6\vec{d} = [15,-3,0] \\ 3\vec{c} - 6\vec{d} = 15\hat{i} - 3\hat{j} + 0\hat{k} \end{array}}$